

### Claims

- 5           1. A method for taking a policy decision by a policy decision device (S3),  
          wherein the policy decision device (S3) has access to objects being  
          relatable to each other by relations of one or more relation types, the  
          method comprising the steps of
- 10           -       Receiving (100) a request for the policy decision, the request  
                  specifying a first object of the objects and request information,  
          -       Obtaining (105) a policy matching to the request information  
                  and being applicable to a second object of the objects,  
          -       Obtaining (110) at least one propagation rule associated to the  
                  policy, the at least one propagation rule specifying at least one  
15           -       relation type of the one or more relation types,  
                  Verifying if a relation path exists, the relation path linking the  
                  first object and the second object and consisting of one or  
                  more of the relations,  
          -       Verifying if the one or more relations of the relation path are in  
20           -       accordance with at least one of the at least one specified  
                  relation type, and  
          -       if said relation path exists and if said one or more relations of  
                  the relation path are in accordance, applying the policy to the  
                  first object for taking (120) the policy decision.
- 25           2. The method according to claim 1, wherein the at least one propagation  
          rule specifies at least one direction and the method comprises the step of  
          verifying if the one or more relations of the relation path are in  
          accordance with the at least one specified direction.
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3. The method according to claim 1 or 2, wherein the at least one propagation rule specifies at least one condition that is verified for at least one of the objects of the relation path.
- 5 4. The method according to any of the preceding claims, wherein the existence of the relation path is considered for the obtaining (105) of the policy.
- 10 5. The method according to any of the preceding claims, wherein the at least one propagation rule is obtained from at least one propagation rule database on the base of at least one reference identifier associated to the at least one propagation rule and the policy.
- 15 6. The method according to any of the preceding claims, wherein at least one further policy component of the policy is obtained from at least one policy component database based on at least one reference identifier associated to the at least one further policy component and the policy.
- 20 7. A policy decision device (S3) for taking a policy decision, the policy decision device (S3) comprising a receiving unit (RU) and a processing unit (PU), wherein the processing unit (PU) is adapted to access objects being relatable to each other by relations of one or more relation types, the receiving unit (RU) is adapted to receive a request for the policy decision, the request specifying a first object of the objects and request  
25 information, the processing unit (PU) is adapted to obtain (105) a policy matching to the request information and being applicable to a second object of the objects, to obtain (110) at least one propagation rule associated to the policy, the at least one propagation rule specifying at least one relation type of the one or more relation types, to verify if a  
30 relation path exists, the relation path linking the first object and the second object and consisting of one or more of the relations, to verify if the one or more relations of the relation path are in accordance with at least one

of the at least one specified relation type, and if said relation path exists and if said one or more relations of the relation path are in accordance, to apply the policy to the first object for taking (120) the policy decision.

- 5        8. The policy decision device (S3) according to claim 7, wherein the at least one propagation rule specifies at least one direction and the processing unit (PU) is adapted to verify if the one or more relations of the relation path are in accordance with the at least one specified direction.
- 10       9. The policy decision device (S3) according to claim 7 or 8, wherein the at least one propagation rule specifies at least one condition and the processing unit (PU) is adapted to verify for at least one of the objects of the relation path if said at least one object is in accordance with the at least one condition.
- 15       10. The policy decision device (S3) according to any of the claims 7 to 9, wherein the processing unit (PU) is adapted to consider the existence of the relation path for the obtaining (105) of the policy.
- 20       11. The policy decision device (S3) according to any of the claims 7 to 10, wherein the processing unit (PU) is adapted to obtain the at least one propagation rule from at least one propagation rule database on the base of at least one reference identifier associated to the at least one propagation rule and the policy.
- 25       12. The policy decision device (S3) according to any of the claims 7 to 11, wherein the processing unit (PU) is adapted to obtain at least one further policy component of the policy from the at least one policy component database based on at least one reference identifier associated to the at least one further policy component and the policy.
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13. A computer program loadable into a policy decision device (S3), the computer program comprising code adapted to access objects being relatable to each other by relations of one or more relation types, to process a request for a policy decision, the request specifying a first object of the objects and request information, to obtain (105) a policy matching to the request information and being applicable to a second object of the objects, to obtain (110) at least one propagation rule associated to the policy, the at least one propagation rule specifying at least one relation type of the one or more relation types, to verify if a relation path exists, the relation path linking the first object and the second object and consisting of one or more of the relations, to verify if the one or more relations of the relation path are in accordance with at least one of the at least one specified relation type, and if said relation path exists and if said one or more relations of the relation path are in accordance, to apply the policy to the first object for taking (120) the policy decision.
14. The computer program according to claim 13, wherein the at least one propagation rule specifies at least one direction and the computer program comprises code adapted to verify if the one or more relations of the relation path are in accordance with the at least one specified direction.
15. The computer program according to claim 13 or 14, wherein the at least one propagation rule specifies at least one condition and the computer program comprises code adapted to verify for at least one of the objects of the relation path if said at least one object is in accordance with the at least one condition.
16. The computer program according to any of the claims 13 to 15, wherein the computer program comprises code adapted to consider the existence of the relation path for the obtaining (105) of the policy.

- 5 17. The computer program according to any of the claims 13 to 16, wherein the computer program comprises code adapted to obtain the at least one propagation rule from at least one propagation rule database on the base of at least one reference identifier associated to the at least one propagation rule and the policy.
- 10 18. The computer program according to any of the claims 13 to 17, wherein the computer program comprises code adapted to obtain at least one further policy component of the policy from the at least one policy component database based on at least one reference identifier associated to the at least one further policy component and the policy.